DOCUMENT RESUME

ED 035 480 RC 003 939

TITLE [Minnesota Public School Survey Committee. Summary of Phase I.]
PUB DATE [Feb 69]
NOTE 18p.

EDRS PRICE EDRS Price MF-$0.25 HC-$1.00
DESCRIPTORS *Aptitude Tests, Comparative Analysis, Family Environment, High School Students, *Parental Background, *Rural Schools, Rural Urban Differences, *School Size, Small Schools, Surveys, *Urban Schools, Verbal Ability
IDENTIFIERS *Minnesota

ABSTRACT

Designated as Phase I of a larger follow-up study of high school graduates, the report presented a comparison of students' scores on the Minnesota Scholastic Aptitude Test (MSAT) by school size. The population for the study consisted of all high school juniors attending public high schools in Minnesota who had taken the MSAT during the 1966-67 school year. Analysis of the data indicated that there was a direct correlation between high school size and mean raw scores on the MSAT, with students in smaller school systems doing poorer on the MSAT than students in larger school systems. However, it was noted that the educational level of the father could have accounted for this correlation. Tabular material was presented on enrollments, test results, educational and occupational status of students' fathers, and family attitudes. (TL)

[Minnesota Public School Survey Committee
Summary of Phase I.]

U.S. DEPARTMENT OF HEALTH, EDUCATION & WELFARE
OFFICE OF EDUCATION

THIS DOCUMENT HAS BEEN REPRODUCED EXACTLY AS RECEIVED FROM THE PERSON OR ORGANIZATION ORIGINATING IT. POINTS OF VIEW OR OPINIONS STATED DO NOT NECESSARILY REPRESENT OFFICIAL OFFICE OF EDUCATION POSITION OR POLICY.

ED035480

INTRODUCTION

During the past two years the residents of Minnesota have been confronted with a like number of "education reports." They are the "Education 1967 Report" and "Critera Recommendations", both prepared under the auspices of the State Department of Education. These two reports have been acclaimed by numerous educational and legislative leaders; however, criticisms have also been voiced, primarily by educators, legislators and residents of Minnesota. The major criticism by many Minnesotans is directed at recommendations in these reports which in effect spell out "master plans" for consolidating smaller high schools in rural Minnesota.

In an attempt to determine whether the smaller high schools were failing to provide their students with a well rounded education, Duane Hill, Superintendent of Schools at Cosmos, Minnesota directed the following letter to approximately 300 superintendents who head school systems that do not meet the enrollment guidelines specified by the "Education 1967 Report" or by "Critieria Recommendations."

Responses to the letter warranted calling the superintendents together for the purpose of discussing problems associated with school consolidation. Such a meeting was scheduled and held at Cosmos, Minnesota on October 15, 1968. At the October meeting a temporary organization was initiated to study problems associated with high school reorganization in the State of Minneosta.

RC003939

[February 1969]

Superintendents named to the steering committee are: Duane Hill, Chairman, Cosmos; Lyle C. Mikelson, Secretary-Treasurer, Wood Lake; Edward Ness, Franklin; Milton L. Anderson, Maynard; Alden Blixrud, Stewart; Herman J. Hofstad, Milan; L.M. Baldwin, Bellingham; and J. L. Harrington, Edgerton.

The group which was named the Minnesota Public School Survey Committee (MPSSC) was organized to "preserve for Minnesota's citizens the right of local determination in matters of school district reorganization." In the opinion of the superintendents attending the organizational meeting, "high school reorganization can best be accomplished by natural attrition."

At the initial meeting of the steering committee plans were initiated to undertake an extensive follow-up study which will include graduates from high schools of all sizes. The study will go back one, three and five years. It was the feeling of the committee that it would not be wise to go back more than five years because of the changing complexion of higher education in Minnesota since the development of Junior Colleges and Area Vocational and Technical Schools.

The research here-in reported deals with Phase I of the study. Phase I was included to identify a starting point for the comparison of boys and girls who graduate from Minnesota High Schools of varying sizes. Basically the initial phase involves a comparison by school size of scores on the Minnesota Scholastic Aptitude Test--a college level aptitude test widely used in the State of Minnesota.

DESIGN OF PHASE I

This section includes an examination of the method of research employed; a definition and description of the population, a review of the Minnesota Scholastic Aptitude Test, and a review of the procedure followed in collecting the data.

Phase I attempted to determine whether there were relationships between the results on the Minnesota Scholastic Aptitude Test and school size. This Phase of the over-all study was designed to identify a starting point for the follow-up study, or Phase II of the research to be undertaken by the Minnesota Public School Survey Committee.

Populations

The populations examined in Phase I consisted of high school juniors (1968 high school graduates) who were administered the MSAT during the 1966-67 school year. With few exceptions, the instrument was administered to all high school juniors attending public and private high schools in Minnesota. The results here-in reported are for public high school students only.

The Minnesota Public School Survey Committee spent considerable time discussing a means of classifying Minnesota's high schools into size intervals. It was finally resolved that the classification should be based on the number of class sections, allowing half an interval above and below the mid point of the interval. For example, a school with 150 students (grades 7-12) would probably have one section per grade, a school with 300 students, two sections per grade, a school with 450 students, three sections per grade, etc. Allowing one half interval above and below the mid-point the classification as shown in Table 1 results.

TABLE 1

NUMBER OF HIGH SCHOOLS, CLASSIFIED
BY ENROLLMENT, INCLUDED IN THIS STUDY

Group	High School Enrollment	Number Schools in Group
1	less than 225	117
2	226-375	117
3	376-525	67
4	526-675	30
5	676-825	24
6	826-975	18
7	976-1125	9
8	1126-1275	10
9+ 10*	1276-1575	8
11	1576-1725	4
12	1726-1875	7
13	1876-2025	4
14	2026- up	29
		444**

* Combined on the Recommendation of the Director of the Student Counseling Bureau, University of Minnesota.

**Does not include Minneapolis, St. Paul or Duluth.

Note: Enrollment figures were secured from the 1967-68 Minnesota Education Directory prepared by the Department of Education, State of Minnesota, Saint Paul, Minnesota

Minnesota Scholastic Aptitude Test

The Minnesota Scholastic Aptitude Test provides a single score which predicts how well students will do in college. The test consists of 78 items and requires 50 minutes testing time. The student encounters a reading passage, followed by questions based on the passage. The student attempts same-opposites and analogies items, which measure his vocabulary and understanding of the relationships of words. This highly verbal instrument has also proven useful in predicting academic success for freshman in engineering courses.[1]

Collecting The Data

The descriptive data reported in Phase I was colledted through the cooperation of Dr. Edward Swanson, Director of the Student Counseling Bureau at the University of Minnesota. Initial contact with Dr. Swanson indicated that the type of data the Committee was seeking was readily available since all the information was stored on computer tapes.

In late December, Dr. Swanson, was given the break down of schools outlined by the MPSSC and asked to put the data together as soon as possible. The initial tabulations were made and the data was delivered to the chairman of the MPSSC on January 24, 1969. The balance of this report summarizes the data as received from the Student Counseling Bureau at the University of Minnesota. Without exception, the tables summarizing the data, prepared by the Student Counseling Bureau, have been duplicated exactly as submitted to the MPSSC.

[1]Berdie, Ralph F. and Etel; Counseling and the Use of Tests, Association of Minnesota Colleges, Minneapolis 1962, p. 93-94

FINDINGS

Minnesota Scholastic Aptitude (MSAT) results for Minnesota Public High Schools grouped by Size of School District, based on Juniors tested in 1966-67, are presented in Table 2.

Looking at the group means it appears that Group 1-4 are similar, with means ranging between 30-31. Then another combination of groups, Group 5-11, have means ranging from 30.6 to 33.5 with the balance of the groups ranging from 33 to 34.5. In general, it appears that there is a direct relationship between high school size and mean raw scores on the Minnesota Scholastic Aptitude Test. In other words, the larger the high school system, the higher the mean raw score on the Minnesota Scholastic Aptitude Test.

Table 3 summarizes the analysis of variance results showing the degrees of freedom which indicate the statistical significance of the findings. (You will recall that an analysis of variance involves a comparison of means. You may also recall that an analysis of variance can be followed by contrasts or comparisons to identify where the differences actually lie in the groups examined. For the purpose of this study, the data presented in Table 2 was deemed to be sufficient; however, should the reader wish to make a number of contrasts or comparisons he will find a discussion by William L. Hays, in Statistics for Psychologists by Holt, Rinehart and Winston, quite helpful.)

The MPSSC attempted only to make a comparison between schools that would be affected through reorganization. For that reason, the cities of Minneapolis, St. Paul, and Duluth were not included in the tabulation of data presented in Table 2.The Minnesota Scholastic Aptitude Test score means for the larger cities in Minnesota are

Table 2

Minnesota Scholastic Aptitude Test (MSAT) Results for Minnesota Public High Schools Grouped by Size of School District. Based on Juniors Tested in 1966-67.

Groups	N	X	S.D.
1	3,010	30.02	12.34
2	5,269	30.34	12.51
3	4,505	30.82	12.55
4	2,807	30.73	12.64
5	2,860	32.14	13.22
6	2,449	31.69	13.04
7	1,295	32.11	13.25
8	1,739	32.09	13.16
9 + 10	1,684	33.45	14.02
11	1,050	30.51	13.01
12	1,767	33.98	13.74
13	1,133	33.08	13.78
14	17,007	34.51	13.92
Total	46,575	32.53	13.42

Table 3

Analysis of Variance on MSAT
Mean Scores of Grouped Schools

	Degrees of Freedom	Sum of Squares	Mean Square
Total	46,574	8,383,997.92	
Within	46,562	5,525,346.45	118.67
Between	12	2,858,651.47	238,220.96

$$F_{12,46562} = \frac{\text{Between}}{\text{Within}} = 2007.42$$

($F_{12,46562} = 2.18$ is significant at .01)

Table 4*

MSAT Means and Standard Deviations

1966-67 Juniors

	N	X	S.D.
Minneapolis High Schools	4,431	31.01	13.58
St. Paul High Schools	3,173	29.68	13.49
Duluth High Schools	1,357	31.94	13.18
Total	8,961	30.68	13.52

*This information is not included in the study for two reasons: (1) metropolitan schools will not be affected greatly by reorganization, and (2) metropolitan schools are faced with many problems unique to large cities. The information in the table is presented to provide a comprehensive picture of students in public high schools in Minnesota.

Table 5

Percent of 1966-67 Minnesota Public High School Juniors Falling at or Below Given MSAT Scores

Group	Per cent Falling Below Given MSAT Raw Score: 20*	25*	31*
1	22	39	57
2	22	37	56
3	21	36	54
4	21	36	55
5	18	34	51
6	19	34	52
7	19	34	49
8	18	34	50
9 + 10	21	33	50
11	24	36	54
12	16	29	45
13	18	32	48
14	15	28	44
Total	18	32	49

Raw Scores	Jr %ile Rank
20	20
25	34
31	50
42	75
52	90

Table 6

Per cent of 1966-67 Minnesota Public High School Juniors Falling at or Above Given MSAT Scores

Per Cent Falling Above Given MSAT Raw Score:

Group	31*	42*	52*
1	40	;7	6
2	42	18	6
3	43	18	7
4	42	18	7
5	47	22	9
6	46	21	8
7	48	22	8
8	46	22	8
9 + 10	52	28	12
11	43	19	7
12	52	27	12
13	50	25	10
14	54	28	13
Total	48	23	9

*See footnote on bottom of Table 5.

presented in Table 4.

Tables 5 and 6 present the per cent of 1966-67 Minnesota Public High School junior following below or above a given MSAT score. The grouping of schools mentioned in the discussion of the mean scores, by school size, shown on Table 2. It would appear that score results are increasing higher as the school enrollment increases.

The Student Counseling bureau at the University of Minnesota has attempted to answer a number of questions which may have a bearing on the students success and interest in higher education. Each Minnesota Scholastic Aptitude Test is accompanied by a brief questionnaire consisting of several questions. The results of three of those questions will be reported. These questions are: (1) What is the occupation of your father; (2) What is the highest educational level achieved by your father; and (3) What is your families' attitudes about you and college. This data is summarized in tables 7,8, and 9.

The occupation of the father appears to vary when considered on the basis of high school size. You will note in table 7 that smaller school systems have the fewest professional people, large systems the most. Smaller systems have fewer skilled tradesman than larger school systems. The opposite is true in the case of farmers--smaller systems have many farmers, large systems few farmers.

Table 8 shows the highest level of education achieved by the father. The differences can best be summarized by considering the percent of fathers who are college graduates and the percent of fathers who have earned degrees beyond the bachelors level. In general it appears that

the smaller school systems have the fewest fathers with a college background and the larger systems have slightly more than one-third of the fathers with college backgrounds.

#2 It is evident that the educational level of fathers whose children attend small school systems is lower than the educational level of fathers who have youngsters attending larger high schools. Subsequently one may conclude that there is a relationship between the fathers education and the child's performance on the Minnesota Scholastic Aptitude Test.

Refer to tables 2 and 7.

Table 9 examines the educational asperations of the child's family. It appears that most parents want their youngsters to attend college. The major differences appear in the larger schools systems... group 14. A rather larger percent of the 1968 graduates said their parents insisted that they go to college, also, nearly 45.1 percent of these youngsters felt their parents were indifferent as to whether or not they went to college. In general, groups 1-13 were quite similar in their responses to this item.

Chart 7

EDUCATION OF FATHER (PERCENTAGES)

Group	1	2	3	4	5	6	7	8	9+10	11	12	13	14
No Response	1.2	1.3	1.6	1.4	1.5	1.0	.9	1.0	1.8	1.3	1.6	1.4	1.4
Did Not Attend	0.3	0.3	0.2	0.3	0.3	0.2	0.5	0.3	0.1	0.1	0.2	1.4	0.3
Some Grade School	5.0	4.9	5.2	4.3	4.4	5.0	3.6	3.7	2.9	5.2	2.9	3.2	1.9
8th Grade	43.8	41.9	39.1	38.4	31.5	35.5	30.1	27.5	23.0	31.2	23.2	28.0	14.10
Some High School	11.3	13.1	13.3	13.3	12.6	12.6	13.9	17.4	15.7	14.77	14.3	16.6	12.2
High School Grad	23.6	23.3	22.8	22.6	22.1	22.7	27.4	24.8	25.6	22.6	25.5	23.8	26.8
Bus./Trade School	4.8	4.6	5.3	5.9	7.1	6.0	6.5	7.3	7.8	5.0	7.0	7.9	9.8
Some College	4.8	4.6	5.3	5.1	7.6	6.3	7.4	7.2	9.2	8.3	10.6	7.5	12.1
College Grad	3.6	4.4	5.4	6.9	8.7	8.2	7.1	8.3	9.9	8.7	12.2	7.4	15.1
Extra Degree	[illegible]	1.8	1.9	1.9	4.0	2.5	2.6	2.6	4.0	2.9	2.5	4.0	6.3
Total	100	100.1	100.1	100.1	99.8	100	100.1	100	100	100	100	100.1	99.9
College Percent	10.0	10.8	12.6	13.9	20.3	17.0	17.1	18.1	24.0	19.9	25.3	18.9	33.5
8th Grade or Below	49.1	47.0	44.5	43.0	36.2	40.7	34.2	31.5	26.0	36.5	26.3	31.5	16.2
High School percent	34.9	36.4	36.1	35.9	34.7	35.3	41.3	42.2	41.3	37.3	39.8	40.4	39.0
Higher Ed	14.8	15.4	17.9	19.8	27.4	23.0	23.6	25.4	30.9	24.9	32.3	26.8	43.3

Chart # 8

OCCUPATION OF FATHER (IN PERCENTAGES)

Group	1	2	3	4	5	6	7	8	9+10	11	12	13	14
No Response	0.3	0.5	0.6	0.5	0.7	0.5	0.6	0.4	0.9	0.5	0.2	0.3	0.5
Profession	3.1	3.5	5.0	5.4	8.4	6.2	6.4	5.6	8.1	7.0	7.2	7.4	12.0
Owns Business	9.0	10.2	11.1	11.3	11.8	11.5	10.3	9.5	13.6	9.7	12.5	12.0	12.1
Office Work	1.6	2.2	2.4	2.4	3.1	4.3	4.4	5.1	4.1	4.0	5.7	4.8	7.1
Sales	2.3	2.3	2.7	3.8	5.1	5.1	5.1	5.0	7.7	4.6	7.7	6.7	11.2
Farms	51.7	45.6	34.8	31.7	24.8	23.7	18.4	13.9	9.3	18.9	7.0	13.0	2.0
Skilled Trades	14.8	17.1	20.8	23.8	22.6	24.7	29.1	29.5	31.0	23.9	27.4	27.4	28.1
Factory Worker	9.7	10.0	12.6	12.6	10.6	11.7	14.3	16.9	11.9	20.9	15.5	11.8	10.7
Other	7.4	8.6	9.9	8.4	12.9	12.3	11.3	14.0	13.5	10.6	16.8	16.8	16.2
Total	99.9	100	99.9	99.9	100	100	99.9	99.9	100.0	99.9	100	100.2	99.9

Chart #9

FAMILY ATTITUDE ABOUT YOU & COLLEGE (PERCENTAGES)

Group	1	2	3	4	5	6	7	8	9+10	11	12	13	14
No Response	3.2	3.4	3.1	2.6	2.5	3.5	2.2	3.1	2.6	2.5	2.2	1.7	6.2
Insists I go	5.3	6.2	6.1	7.7	7.2	8.1	11.5	7.5	8.5	7.4	9.4	8.8	26.1
Wants Me To Go	60.2	59.1	58.8	58.4	60.9	61.0	59.1	62.5	62.9	62.4	65.1	69.2	18.2
Is Indifferent	28.4	28.2	29.1	28.0	26.6	25.0	25.0	23.0	23.0	24.8	20.7	18.8	45.1
Don't Want Me to Go	2.7	2.7	2.5	2.7	2.5	2.2	1.8	2.8	2.8	2.4	2.5	1.4	3.9
Won't Let Me Go	0.2	0.4	0.5	0.7	0.4	0.2	0.3	0.2	0.2	0.5	0.1	0.1	0.5
Total	100	100	100.1	100.1	100.1	100	99.9	99.9	100	100	100	100	100

SUMMARY

In the report of Phase I of the study being undertaken by the MPSSC it was pointed out that students in smaller school systems did more poorly on the Minnesota Scholastic Aptitude Tests than students in larger school systems. Why such differences occur is not known for certain; however, it would appear that the educational level of the father may account for the difference. Such differences are also reflected in the occupation of the father.

The data collected and reported in Phase I should be of interest to the reader; but, please keep in mind that the MPSSC is using this phase of the study as a starting point for a comprehensive follow-up study of graduates of Minnesota's high schools. Hopefully, the results of the follow-up can be reported before many months elapse.

Appendix A

High School Enrollment Intervals, Number of School, Number of Students, and the Sum of Raw Scores for Public High School Juniors Administered the Minnesota Scholastic Aptitude Test (MSAT) in 1966-67.

Group	Enrollment	Schools	Students	Sum of Raw Scores
1	Less than 225	117	3.010	90,366
2	226-375	117	5,269	159,848
3	376-525	67	4,505	138,828
4	526-675	30	2,807	86,258
5	676-825	24	2,860	91,920
6	826-975	18	2,449	77,599
7	976-1125	9	1,295	41,587
8	1126-1275	10	1,739	55,796
9 + 10	1276-1575	8	1,684	56,322
11	1576-1725	4	1,050	32,140
12	1726-1875	7	1,767	60,049
13	1876-2025	4	1,133	37,474
14	2026- up	29	17,007	586,994
Total		444	46,575	1,515,181